REMARKS

The Office Action dated March 28, 2008 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 38, 52, 55, 57, 71, 74, and 75 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 76-78 have been newly added. No new matter has been added and no new issues are raised which require further consideration or search. Claims 38-78 are presently pending.

The Office Action objected to the drawings because there are no text written labels on certain elements of the drawings. The Office Action further alleged that 37 CFR 1.84(n) through 1.84(o) require such text written labels. Applicants respectfully disagree.

37 CFR 1.84(n) provides

> Symbols. Graphical drawing symbols may be used for conventional elements when appropriate. The elements for which such symbols and labeled representations are used must be adequately identified in the specification. Known devices should be illustrated by symbols which have a universally recognized conventional meaning and are generally accepted in the art. Other symbols which are not universally recognized may be used, subject to approval by the Office, if they are not likely to be confused with existing conventional symbols, and if they are readily identifiable.

As can be clearly observed from 37 CFR 1.84(n) text written labels are not required. The only labels that are required are "representations...adequately identified in the specification." As for 37 CFR 1.84(o), this rule does not discuss the requirements of the drawing labeling. Applicant submits that all elements of the drawings are labeled with

numerical identifiers which are adequately represented by the specification. Withdrawal of this objection is kindly requested.

The Office Action rejected claims 38-75 under 35 U.S.C. §112, second paragraph, for allegedly being indefinite. Applicant has amended claims 38, 51, 55, 57, 71, 74 and 75 to clarify that the "already determined estimate" may be one or both of the estimates of the first and second signals. Withdrawal of this rejection is kindly requested.

Claim 38 was rejected under 35 U.S.C. §102(e) as being anticipated by Dowling (U.S. Patent No. 6,782,036). The Office Action took the position that Dowling discloses all of the elements of the claims. This rejection is respectfully traversed for at least the following reasons.

Claim 38, upon which claims 39-46 and 53 are dependent, is directed to an apparatus, including a plurality of receiving elements each of which is configured to receive a composite signal including at least some of a plurality of signals. The apparatus receives the plurality of signals at the same time. A processor is configured to receive the plurality of receiving elements composite signal, and to provide an estimate of at least two of plurality of signals. The processor is configured to provide an estimate of a first one of the signals and to provide an estimate of a second one of the signals. The processor is configured, for each already determined estimate of at least one of the estimate of the first one of said signals and the estimate of the second one of said signals, to extend each of the at least one already determined estimate with a plurality of potential values. The estimate of second one of the signals takes into account the estimate of the

first signal and the estimate of the first signal is modified in dependence on the estimate of the second signal.

Claim 52 is directed to an apparatus, including a plurality of receiving elements each of which is configured to receive a composite signal including at least some of a plurality of signals. The apparatus receives the plurality of signals at the same time. A processor is configured to receive the plurality of receiving elements composite signal, and to provide an estimate of at least two of plurality of signals. The processor is configured to provide an estimate of a first one of the signals and to provide an estimate of a second one of the signals. The processor is configured, for each already determined estimate of at least one of the estimate of the first one of said signals and the estimate of the second one of said signals, to extend each of the at least one already determined estimate with a plurality of potential values. The estimate of second one of the signals takes into account the estimate of the first signal and the estimate of the first signal is modified in dependence on the estimate of the second signal. A metric is determined for the extended estimates. The metric is calculated for a signal estimate at least partially from metric values stored during the calculation of a previously determined estimate

Claim 57, upon which claims 58-70 are dependent, is directed to a method including receiving a plurality of signals at the same time, receiving at each of a plurality of receiving elements a composite signal including at least some of the plurality of signals, and processing the composite signal of each of the received plurality of receiving elements to provide an estimate of at least two of the plurality of signals. The processing

includes providing an estimate of a first one of the signals and providing an estimate of a second one of the signals wherein during the processing, and extending, for each already determined estimate of at least one of the estimate of the first one of said signals and the estimate of the second one of said signals, to extend each of the at least one already determined estimate with a plurality of potential values. The estimate of the second one of the signals takes into account the estimate of the first signal and the estimate of the first signal modified in dependence on the estimate of the second signal.

Claim 71 is directed to a method including receiving a plurality of signals at the same time, receiving at each of a plurality of receiving elements a composite signal including at least some of the plurality of signals, and processing the composite signal of each of the received plurality of receiving elements to provide an estimate of at least two of the plurality of signals. The processing includes providing an estimate of a first one of the signals and providing an estimate of a second one of the signals wherein during the processing, and extending, for each already determined estimate of at least one of the estimate of the first one of said signals and the estimate of the second one of said signals, to extend each of the at least one already determined estimate with a plurality of potential values. The estimate of the second one of the signals takes into account the estimate of the first signal and the estimate of the first signal modified in dependence on the estimate of the second signal. A metric is determined for the extended estimates and the metric is calculated for a signal estimate at least partially from metric values stored during the calculation of a previously determined estimate.

Claim 75 recites an apparatus, including plurality of receiving element means each for receiving a composite signal including at least some of a plurality of signals, wherein the apparatus receives the plurality of signals at the same time, and processing means for receiving the plurality of receiving element composite signal and providing an estimate of at least two of the plurality of signals, the processing means providing an estimate of a first one of the signals and providing an estimate of a second one of the signals, wherein the processing means, for each already determined estimate of at least one of the estimate of the first one of said signals and the estimate of the second one of said signals, to extend each of the at least one already determined estimate with a plurality of potential values. The estimate of the second one of the signals takes into account the estimate of the first signal and the estimate of the first signal modified in dependence on the estimate of the second signal.

As will be discussed below, the teachings of Dowling fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above. The rejection is respectfully traversed for at least the following reasons.

Dowling discloses a smart antenna multi-user detector. A multiple user receiver receives a composite signal generated from a plurality of antennas and generates a matrix within the "matrix former" 125 (see FIG. 1 of Dowling). A series of receiver elements 130 are provided for each user. Within each of these receiver units 130, the data from the matrix is aligned and processed in order to extract the data required for a specific user. For example, a data stream D is generated based on the received signal Y.

Referring to FIG. 5 of Dowling, a series of output parameters are generated and the final vector of decisions and paths are passed to a subtractive CDMA multi-user detection unit 500. In operation, the subtractive system performs subtraction to produce more accurate symbol estimation in a manner similar to that known in the prior art. Referring to column 18, line 57 onwards, users with strong signals are decoded first and the subtraction quantities of the strong users are subtracted prior to the detection of weaker signals. This, solution may be problematic in that a later detected weaker signal may cause problems or errors with the stronger signals. This problem may be overcome in embodiments of the present application, as the estimate of a second one of two signals takes into account the estimate of the first signal. Furthermore, the estimate of the first signal is modified independently of the estimate of the second signal. Dowling does not disclose taking subsequent and causal signal conditions into consideration.

In Dowling, each of the receiver modules 130 perform their own internal feedback measurements. However, they handle their own feedback only for the purpose of selecting more accurate parameters defining the data block, and, certainly not to estimate a first signal or a second signal at that same point in time of conducting the measurement. Therefore, Dowling fails to teach or suggest "providing an estimate of at least two of said plurality of signals...to extend each of the at least one already determined estimate with a plurality of potential values, wherein said estimate of said second one of said signals takes into account the estimate of the first signal and the estimate of the first signal is modified in dependence on the estimate of the second signal", as recited, in part, in

independent claim 38 and similarly in independent claims 52, 55, 57, 71 and 74-78. Dowling simply fails to account for performing an estimate of a signal that is based on at least one other estimate of a signal.

Therefore, Applicants submit that Dowling fails to teach all of the subject matter of independent claims 38, 52, 55, 57, 71 and 74-78. By virtue of dependency, Dowling also fails to teach the subject matter of those claims dependent thereon. Withdrawal of the rejection of claims 38, 52, 55, 57, 71 and 74-78 is kindly requested.

For at least the reasons discussed above, Applicants respectfully submit that the cited references fail to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 38-78 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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Enclosures: Petition for Extension of Time
Additional Claims Fee Transmittal
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